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10/006,298	12/06/2001	Daniel Tapson	450110-03717	2646

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EXAMINER	
BHATNAGAR, ANAND P	
ART UNIT	**PAPER NUMBER**
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/006,298	TAPSON, DANIEL	
	Examiner	Art Unit	
	Anand Bhatnagar	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-26 and 28-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4-26, and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/27/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Applicant's amendment filed on 06/26/06 has been entered and made of record.

2. Applicant has amended claims 1, 4, 5, 10, 28, and 29. Claims 3 and 27 have been canceled. Currently claims 1, 2, 4-26, and 28-30 are pending.

3. Applicant's arguments, see remarks, filed 06/26/06, with respect to the rejection(s) of claim(s) 1, 2, 4, 5, 13-26, and 28-30 under 35USC 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Linnartz (5,933,798).

DETAILED ACTION

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 30 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Regarding claim 30: This claim is a "computer program product claim comprising software code" but as written it is nonstatutory (see MPEP 2106, especially section IV, and interim guidelines especially pages 52 and 53). To overcome the 35USC 101 rejection please amend this claim with "A computer readable medium encoded with a computer program....".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-26, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linnartz (U.S. patent 5,933,798).

Regarding claim 1: Linnartz discloses an apparatus (fig. 3 element 3) comprising:

a combiner (fig. 3 element 23) for receiving material in the spatial domain, the material comprising a plurality of spatial domain pixels and combining the pixels of said spatial domain watermark data with the spatial domain pixels of said material in the spatial domain to form watermark data embedded material (fig. 3 elements 21-23 and 26, col. 2 lines 3-11, and col. 4 lines 27-40, wherein element 23 combines the generated watermark signal to the watermarked signal in the spatial domain).

Linnartz does not implicitly teach the feature of "an inverse transformer configured to perform an inverse transformation, such that transform domain watermark data comprising a plurality of transform domain coefficients is inverse transformed into spatial domain watermark data." Linnartz suggests that the predicted filter, fig. 3 element 26, is based on the statistical properties of the

information signal and can be a combinations of a transform including a **inverse transform** (see fig. 3 elements 21-26 and col. 4 lines 45-55, wherein if the predictive filter is an inverse transform, i.e. then this would inversely transform the watermark generated by element 21, from its transform domain to the spatial domain for the embedding to take place. If this predictive filter is an inverse transform then this is read as "an inverse transformer configured to perform an inverse transformation, such that transform domain watermark data comprising a plurality of transform domain coefficients is inverse transformed into spatial domain watermark data comprising a plurality of spatial domain pixels which form spatial domain watermark data"). It would have been obvious to one skilled in the art to modify the system to first inversely transform a watermark signal to embed into a signal in the spatial domain based on the suggestion made by Linnartz. One in the art would have motivated to incorporate the inverse transform of Linnartz to transform the watermark and/or the signal depending on the domain that each of these signals are present so that they can be presented in the same domain for proper embedding.

Regarding claim 2: The apparatus wherein said inverse transformer receives said transform domain watermark data comprising a plurality of transform domain coefficients and transforms said transform domain watermark data into spatial domain data comprising a plurality of spatial domain pixels which form the spatial domain watermark data (col. 2 lines 3-10, col. 4 lines 27-50, and see claim 1 above).

Regarding claim 4: The apparatus wherein said material is one or more of audio/visual material and video material (col. 1 lines 5-9 and col. 2 lines 3-6, wherein the watermark is embedded into a multimedia signal, i.e. a signal that has audio and video).

Regarding claim 5: The apparatus of claim 2, wherein said material is data Material (col. 1 lines 5-9 and col. 2 lines 3-6, wherein the multimedia signal and/or video are composed of sound and/or image data and is therefore read as "data material").

Regarding claim 6: Linnartz does not teach "wherein said transform domain watermark data comprises a Pseudo Random Symbol Stream modulated by information to embed in the material." Examiner takes OFFICIAL NOTICE. It would have been obvious to one skilled in the art to use a Pseudo Random Symbol Stream (PRSS) to embed into a signal since this is well known in the art of watermarking. One in the art would have been motivated to include the feature of PRSS into the disclosure of Linnartz to make the watermark more robust.

Regarding claim 7: Linnartz does not teach the feature of "transform domain watermark data comprises a Universal Material Identifier (UMID)." Examiner takes OFFICIAL NOTICE. It would have been obvious to one skilled in the art to use UMID and embed it into a signal since this is well known in the art of watermarking. One in the art would have been motivated to include the feature of UMID into the disclosure of Linnartz to include features of the owner of the work, the publisher, some information about the item being watermarked, date of

watermark, where/when it was watermarked, etc. so that if the situation arises the item in question can be verified/authenticated.

Regarding claim 8: The apparatus wherein said material and said spatial domain watermark data both comprise a digital bitmap (col. 2 lines 43-60 and col. 3 lines 1-27).

Regarding claim 9: The apparatus wherein said transform domain watermark data comprises a digital bitmap (col. 2 lines 43-60 and col. 3 lines 1-27).

Regarding claim 10: The apparatus wherein said transform transformer is an inverse wavelet transformer (col. 2 lines 3-10, col. 4 lines 40-50, and see claim 1 above).

Regarding claim 11: The apparatus wherein said wavelet coefficients comprise information encoded in coefficients in at least two bands in at least one level (col. 2 lines 3-10, col. 4 lines 40-50, and see claim 1 above. Each frequency subband is watermarked and each subband is obviously composed of a plurality of coefficients).

Regarding claim 12: The apparatus wherein said transform domain watermark data comprises DCT coefficients and said inverse transformer is an inverse DCT transformer (col. 2 lines 3-10, col. 4 lines 40-50, and see claim 1 above).

Regarding claim 13: The apparatus wherein said combiner arithmetically combines the pixels of said material and the pixels of said spatial domain watermark data (fig. 3 element 23).

Regarding claim 14: The apparatus further comprising:

a strength adapter for adapting the strength of the pixels of said spatial domain watermark data in dependence on the spatial domain pixels of said material, wherein said combiner arithmetically combines the spatial domain pixels of said material and said strength adapted pixels of the spatial domain watermark data (fig. 3 elements 22 and 23, fig. 4 element 44, and col.6 lines 13-24, wherein a weighting factor is applied to embed the watermark. This weighting factor is read as the strength adapter).

Regarding claim 15: The apparatus wherein said strength adapter comprises:

a generator responsive to the pixels of said material for generating strength control information (col.6 lines 13-24, wherein a weighting factor is applied to embed the watermark. This weighting factor is read as the strength adapter); and

a multiplier for adapting the magnitude of the pixels of said spatial domain watermark data in accordance with said strength control information to produce said strength adapted spatial domain watermark data (fig. 4 elements 42 and 44 and col. 6 lines 13-40).

Regarding claim 16: The apparatus wherein said material comprises spatial domain material and said generator generates strength control information responsive to said spatial domain material (col. 2 lines 3-6 and col. 6 lines 13-40).

Regarding claim 17: The apparatus of claim 15, wherein said generator receives the spatial domain pixels of said material, analyses each value of said material and generates strength control information (col. 2 lines 3-6 and col. 6 lines 13-40, wherein the correlation takes place, i.e. the analysis).

Regarding claim 18: The apparatus comprising:

a strength adapter for adapting the strength of the coefficients of said transform domain watermark data in dependence on the spatial domain pixels of said material wherein said inverse transformer transforms said strength adapted transform domain watermark data into strength adapted spatial domain watermark data and said combiner arithmetically combines the pixels of said material and said strength adapted pixels of the spatial domain watermark data (fig. 4 elements 42 and 44 and col. 6 lines 13-40).

Regarding claim 19:The apparatus wherein said strength adapter comprises:

a transformer for transforming the spatial domain pixels of said material into transform domain material comprising a plurality of transform domain coefficients (col. 6 lines 13-24, wherein the predictive filter/transform is embedded into the weighting circuit, strength adapter.);

a generator responsive to the coefficients of said transform domain material for generating strength control information (col. 6 lines 13-24, wherein the predictive filter/transform is embedded into the weighting circuit, strength adapter); and

a multiplier for adapting the magnitude of the coefficients of said transform domain watermark data in accordance with said strength control information to produce strength adapted transform domain data comprising a plurality of transform domain coefficients (fig. 4 elements 42 and 44 and col. 6 lines 13-24).

Regarding claim 20: The apparatus wherein said generator receives said transform domain material, analyses each pixel of said transform domain material and generates strength control information (fig. 4 elements 42 and 44 and col. 6 lines 13-24).

Regarding claim 21: A method comprising the steps of:

inverse transforming transform domain watermark data comprising a plurality of transform domain coefficients into spatial domain watermark data comprising a plurality of spatial domain pixels which form a spatial domain watermark data; and combining the pixels of said spatial domain watermark data with the spatial domain pixels of material to form watermark data embedded material (see claim 1).

Regarding claim 22: The method wherein prior to the inverse transforming step, performing the step of:

receiving the transform domain watermark data (fig. 3 elements 21-26).

Regarding claim 23:The method of claim 21, wherein the combining step comprises the step of:

arithmetically combining the pixels of said spatial domain watermark data and the spatial domain pixels of said material (fig. 3 elements 22 and 23 and see claim 13).

Regarding claim 24: The method further comprising the step of:

adapting the strength of the pixels of said spatial domain watermark data in dependence on the spatial domain pixels of said material and outputting strength adapted spatial domain watermark data (see claim 14), and

wherein the combining step comprises the step of arithmetically combining the pixels of said strength adapted spatial domain watermark data and the spatial domain pixels of said material (see claim 14).

Regarding claim 25: The method of claim 24, wherein the adapting step comprises the steps of:

generating strength control information (see claim 15); and

adapting the magnitude of the pixels of said spatial domain watermark data in accordance with said strength control information (see claim 15).

Regarding claim 26: The method wherein the generating strength control information step comprises the steps of:

receiving the spatial domain pixels of said material (figs 3 and 4 and col. 6 lines 13-24); and

analyzing each pixel of said material (col. 6 lines 13-24).

Regarding claim 28: The method wherein the said material is one or more of audio/video material and image material (see claim 4).

Regarding claim 29: The method wherein the said material is data material (see claim 5).

Regarding claim 30: A computer program product comprising software code for performing the steps of claim 21 when said product is run on a computer (col. 1 lines 5-8, wherein this is a digital data processing, i.e. a computer/processor).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry into this communication should be directed to Anand Bhatnagar whose telephone number is 571-272-7416, whose supervisor is Jingge Wu whose number is 571-272-7429, group receptionist is 703-305-4700, and Central fax is 571-273-8300.

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AB

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September 10, 2006